

Claims :

1. An electrically controlled device, which device comprises at least one electrically and individually controllable cell (L,R) with a least two separate electrode structures (10,50) arranged within said cell, said electrode structures (10,50) capable of storing electric charges (C10,C50), **characterized** in that the device comprises further means (P,S10,S20,TFT10,TFT50) to transfer electric charges in a temporally controlled manner between said at least two separate electrode structures (10,50), and that for at least one of said the electrode structures (50) within said cell, said charge transfer means comprises substantially the only means for providing electrical power and/or electrical driving.

2. The device according to the claim 1, **characterized** in that the device is an electrically controlled light modulator device comprising at least one cell (L,R), said cell comprising at least

- two deformable dielectric layers (12,13) which meet at an interface, at least one of said layers consisting of viscoelastic relief forming gel (12),
- a support electrode structure (14) arranged on one side of the dielectric layers (12,13),
- a signal electrode structure (10) arranged on the other side of the dielectric layers (12,13) and opposite to the support electrode structure (14),
- an enhancement electrode structure (50) composed of one or more separate electrode zones arranged in the proximity of the signal electrode structure (10),
- signal means (S10,TFT10) for electrically driving the support (14) and signal (10) electrode structures in order to generate electric field between said electrode structures and passing at least partly through the two deformable dielectric layers (12,13) in order to create surface reliefs on the viscoelastic gel layer (12),
- enhancement signal means (S50,TFT50) for electrically driving the enhancement electrode structure (50) in order to generate electric field enhancing the deformation of the viscoelastic gel layer (12), and that

within said cell (L,R) in order to electrically drive the enhancement electrode structure (50) the enhancement signal means (S50,TFT50) are arranged in a temporally controlled manner to transfer electric charges between the signal electrode structure (10,C10) and the enhancement electrode structure (50,C50).

3. The device according to the claim 2, **characterized** in that said temporally controlled charge transfer process comprises substantially the only means to provide electrical power to the enhancement electrode structure (50) within said cell.

4. The device according to the claim 2, **characterized** in that the enhancement signal means (S50,TFT50) are arranged in a temporally controlled manner to discharge at least part of the electric charge stored in the enhancement electrode structure (50,C50) back to the signal electrode structure (10,C10) and/or to the device ground.

5. The device according to the claim 2, **characterized** in that the charge transfer process comprises a first temporal phase, where within a cell the electric charge stored in the signal electrode structure (10,C10) is arranged to be transferred to the enhancement electrode structure (50,C50).

6. The device according to the claim 5, **characterized** in that the charge transfer process comprises a second temporal phase, where within a cell the electric charge stored in the signal electrode structure (10,C10) is arranged to be discharged without affecting the charge stored in the enhancement electrode structure (50,C50).

7. The device according to the claim 5, **characterized** in that the charge transfer process comprises a third temporal phase, where within a cell the electric charge stored both in the signal electrode structure (10,C10) and in the enhancement electrode structure (50,C50) is arranged to be discharged substantially simultaneously.

8. The device according to the claim 1, **characterized** in that within a cell the enhancement electrode structure (50) and the signal electrode

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structure (10) are arranged substantially in a single common plane respect to each other and facing the opposite support electrode structure (14).

9. The device according to the claim 2, **characterized** in that within a cell the enhancement electrode structure (50) and the signal electrode structure (10) are arranged in substantially different planes respect to each other and respect to the opposite support electrode (14).

10. The device according to the claim 1, **characterized** in that multiple cells are arranged into a matrix to form an optical display device.